

Rejection under 35 U.S.C. §112

In paragraph three (3) of the office action, the rejection of claims 5, 7 and 11 under 35 U.S.C. §112, first paragraph, as “containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.” has been maintained.

Applicant previously argued that one skilled in the art would understand the numerical ranges of the ratios. While the Examiner agreed with Applicant’s position (see the Office Action page 3), the Examiner further indicated that “the rejection to the claims as clearly set forth in the previous office action is directed to the specification with the data concerning the lens elements. In particular, it is unclear whether the data relating to the optical characteristics of the lens elements as provided in the specification are sufficient to support for the conditions claimed or not.”

The Examiner suggested addition of numerical examples to the specification. Accordingly, the specification is herein amended to add Table 2 as instructed above showing numerical examples of the focal lengths of the lenses. No new matter has been added by the addition of Table 2.

Further, regarding claims 7 and 11, support for “ $-0.8 < r_t < -0.1$ ” (claim 7) and “ $-0.5 < r_t < -0.2$ ” (claim 11) may be found for example at page 17, line 23 and page 18, line 23, respectively, of the original specification.

Applicant believes that the added table along with relevant portions of the specification provide support for claims 5, 7 and 11.

In paragraph five (5) of the office action, claims 9-11 have been further rejected under 35

U.S.C. §112, second paragraph, as being indefinite for failing particularly point out and distinctly claim the subject matter.

The Examiner indicated that the term “and said fourth and fifth lens units decrease” is indefinite in both claims 9 and 11.

Claims 9 and 11 have been amended for further clarification. In particular, the term --a separation between-- has been added to both claims 9 and 11.

In view of the foregoing, reconsideration and withdrawal of the rejections of claims 5, 7, 9 and 11 under 35 U.S.C. §112 is respectfully requested.

Rejections under 35 U.S. C. §103

In paragraph seven (7) of the office action, claims 1, 3, 4 and 9 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,025,962 to Suzuki (“Suzuki”) in view of U.S. Patent No. 5,000,549 to Yamazaki (“Yamazaki”).

According to the Examiner, Suzuki fails to disclose the feature of claims 1 and 9 that only the negative lens component of the fourth lens unit is moved for compensating the image vibrations. The Examiner further indicated that “[e]ven though the zoom lens system provided by Yamazaki is a two-lens units zoom lens; however, in the lens unit selected as the compensating lens unit, Yamazaki teaches that the whole lens unit or just a part of the lens unit can be used as a compensation lens element. The part of the lens unit to be moved can be a negative lens subunit (I-1) or a positive lens subunit (I-2).”

First, in an optical system, adding/subtracting one or more lens units usually have a significant effect because each of the lens units creates a different light path, a different diffraction rate and a different deflectoin rate. As a result, adding/subtracting one or more lens

unit implicates totally different technical aspect such that using a two-lens unit zoom lens system as in Yamazaki cannot be equated to a zoom lens system with a five-lens unit zoom lens as in claims 1 and 9 of the present invention.

Further, as Applicant has pointed out in the previous response, the zoom lens as featured in claim 1 moves a part of the fourth lens unit while Suzuki moves the entire fourth lens unit. These different movements have different effects in stabilizing and zooming images.

As a part of zoom lens, the fourth lens unit may maintain good optical performance, e.g., in zooming, when set to have a certain focal distance. On the other hand, the fourth lens requires as an image stabilizing lens an appropriate focal distance for stabilizing images. In moving the entire fourth lens unit, like in Suzuki, the fourth lens unit has difficulty in meeting both a focal-distance condition for zooming and stabilizing images. In other words, Suzuki's fourth lens unit "compromises" and cannot meet both conditions. As a result, in Suzuki's system, it is difficult to obtain both good zooming performance and image stabilization performance simultaneously with a small degree of freedom of lens design.

In contrast, by displacing only a part of the fourth lens unit as specifically recited in claims 1 and 9, it is possible that the entire fourth lens unit (L4) is divided into at least two portions and each of which may be adjusted to a focal length for the best zooming and/or for the best image stabilizing, respectively. As a result, it is possible to obtain simultaneously good zooming and image stabilizing performances with a large degree of freedom of lens design.

Accordingly, Applicant respectfully submits that each of claims 1 and 9 is neither anticipated by nor rendered obvious in view of Suzuki and Yamazaki, either taken alone or in combination for at least the reasons discussed above.

In paragraph nine (9) of the office action, claims 1, 3, 4, 6, 8 and 9 have been rejected under 35 U.S.C. §103(a) over U.S. Patent No. 4,498,741 to Ishiyama ("Ishiyama") in view of Suzuki and Yamazaki.

The Examiner states that "[t]he combined product as provided by Ishiyama and Suzuki does not disclose that only a part of the lens unit is decentered in the image compensating process; however, the movement of the whole lens unit or just a part of the lens unit in an image compensating process is known to one skilled in the art as can be seen in the system provided by Yamazaki."

As discussed above, Applicant believes that displacing a part of the fourth lens unit as opposed to the entire fourth lens unit is patentably distinct from the teaching of the cited art, either alone or in combination.

Accordingly, Applicant believes that each of claims 1 and 9 is neither anticipated by nor rendered obvious in view of the cited references (Suzuki, Yamamoto, Yamazaki and Ishiyama), either taken alone or in combination, for at least the reasons discussed above.

In view of the foregoing, withdrawal of the various rejections is respectfully requested.

Applicant has not individually addressed the rejections of the dependent claims because Applicants submit that the foregoing places the independent claims from which they respectively depend in condition for allowance. Applicant however reserves the right to address such rejections of the dependent claims should such be necessary.

Applicant believes that the added claim is in condition for allowance and such action is respectfully requested.

PATENT

Docket No.: 1232-4767
Serial No.: 09/966,698

AUTHORIZATION

A petition for a one-month extension of time along with the associated fee is enclosed, extending the date for responding until February 28, 2003. Should an additional extension of time be required to render this paper timely filed, such extension is hereby petitioned and the Commissioner is authorized to charge any other fees necessitated by this Amendment, or credit any overpayment to our Deposit Account No. 13-4500 (Order No. 1232-4767). **A DUPLICATE COPY OF THIS SHEET IS ENCLOSED.**

An early and favorable examination on the merits is respectfully requested.

Respectfully submitted,
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Dated: February 25, 2003

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Version with Markings to Show Changes Made**IN THE SPECIFICATION**

Please add the following after Table 1 of page 23 of the specification.

-- Illustrated in Table 2 are examples of focal lengths of the various lenses as discussed above with respect to Table 1.

Table 2

	Numerical Examples			
	1	2	3	4
f1	69.24	67.13	68.24	67.67
f2	-14.51	-14.12	-15.16	-14.70
f3	33.11	33.64	38.21	33.70
f4	-117.69	-128.90	-229.99	-167.74
f5	48.62	45.81	47.19	50.93
fis	-46.89	-48.73	-49.12	-46.04

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IN THE CLAIMS

Please amend claims 9 and 11 as follows.

9. (Twice Amended) An optical apparatus comprising a zoom lens, said zoom lens comprising, in order from an object side,

a first lens unit of positive refractive power;

a second lens unit of negative refractive power;

a third lens unit of positive refractive power;

a fourth lens unit of negative refractive power; and

a fifth lens unit of positive refractive power,

wherein predetermined lens units move during zooming from a wide-angle end to

a telephoto end so that a separation between said first and second lens units increases, a separation between said second and third lens units decreases, a separation between said third and fourth lens units increases, and a separation between said fourth and fifth lens units decreases, and

wherein an image is displaced by moving a part of the fourth lens unit so as to have a component of a direction perpendicular to an optical axis of said zoom lens.

11. (Amended) A zoom lens comprising in order from an object side,

a first lens unit of positive refractive power;

a second lens unit of negative refractive power;

a third lens unit of positive refractive power;

a fourth lens unit of negative refractive power; and

a fifth lens unit of positive refractive power,

wherein predetermined lens units move during zooming from wide-angle end to a telephoto end so that a separation between said first and second lens units increases, a separation between said second and third lens units decreases, a separation between said third and fourth lens units increases, and a separation between said fourth and fifth lens units decreases,

wherein an image is displaced by moving at least part of the fourth lens unit so as to have a component of a direction perpendicular to an optical axis of said zoom lens, and

wherein said zoom lens satisfies the following condition:

$$-0.5 < \beta_{rt} < -0.2$$

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where β_{rt} is a lateral magnification at a telephoto end of optical part disposed closer to an image plane than said at least part of the fourth lens unit so as to have a component of a direction perpendicular to the optical axis of said zoom lens.